

LETTERS TO THE EDITOR.

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Note on the Discovery of the Human Trypanosome.

WE have recently seen in the medical Press several very inaccurate accounts regarding the authorship of the important new discovery of trypanosomes in human blood, and of the disease caused by them. For instance, the *Journal of Tropical Medicine* for November 1 (in giving an anonymous description, supported by an editorial, of a case just observed by Drs. Daniels and Manson) attributes the original discovery to Dr. R. M. Forde. It does not mention even the name of Dr. J. Everett Dutton. Dr. Dutton is an old student and assistant in this Laboratory, and is now away on the West African Coast; and we are of opinion that he has a claim to be considered in the matter of this discovery. Another periodical, *The Hospital* for November 8, while also omitting Dr. Dutton's name, states that the discovery was made "within the last few days" by the London School of Tropical Medicine. We believe that such statements are calculated to distort the history of the discovery, and should therefore like to have an opportunity for correcting them promptly in your pages.

The facts regarding the history of the discovery—which was made nearly a year ago—have already been publicly and adequately stated both by Dr. Forde¹ and by Dr. Dutton.² Dr. Forde, Colonial Surgeon, British Gambia, tells us that the case in which the parasites were first observed came under his notice in May, 1901; that he found in the blood "small worm-like, extremely active bodies, which I prematurely pronounced a species of filaria," although this conclusion "became doubtful after repeated observations of the parasite"; and that he showed the case in December, 1901, to Dr. J. Everett Dutton, then upon a mission of the Liverpool School of Tropical Medicine to the Gambia, and that Dr. Dutton "at once recognised" the parasite "as a species of Trypanosoma." Dr. Dutton's two papers corroborate these statements of Dr. Forde. After the recognition of the new organism, Dr. Forde gave the first records of the case to Dr. Dutton. Dr. Dutton it was, as Dr. Forde says, who recognised that the fever was of a peculiar undulant type; Dr. Dutton it was who positively excluded malaria as the cause of the symptoms; it was he who saw that those symptoms roughly resemble those of tsetse-fly disease and surra; it is he who has published accurate and able descriptions, drawings and charts of the parasites and of the case; and it is he who is now, with Dr. Todd, investigating the subject in West Africa for the Liverpool School of Tropical Medicine.

Dr. Forde is undoubtedly deserving of great credit for his part in the matter, and we think his name should be associated with the discovery. But, until Dr. Dutton was called in, he published no account of the case and did not recognise the nature of the parasite, or the peculiarity of the symptoms. In order to make a discovery, it is not sufficient merely to see an object; it is necessary also to recognise the nature of the object seen and to publish accurate and adequate descriptions of it. For example, Virchow and others long ago saw the parasites of malaria without recognising their parasitic nature; but it is to Laveran, who did recognise their nature, that science gives the credit for the discovery of them. It is certain that Dr. Dutton was the first clearly to observe and to signal the existence of trypanosomes in human blood, and the first to give accurate descriptions of the new organism; and it is to him that science will give the principal credit for the new observation.

It seems to us particularly unfortunate that the *Journal of Tropical Medicine* should have so ostentatiously omitted the name of Dr. Dutton at the moment when it was engaged in giving great prominence to a case of Drs. Manson and Daniels, which, after all, would probably have escaped notice but for the previous work of Dutton. We may mention also—and this is another point which the *Journal of Tropical Medicine* appears to have forgotten—that before his departure for Africa, Dr. Dutton gave at this Laboratory a detailed demonstration, both of the parasite and the clinical features of the case, to Drs.

Manson and Daniels, and to one of the editors of the periodical referred to. The omission, then, appears to be due rather to want of memory than to want of knowledge. The journal also states that while the first case (namely, that of Dutton and Forde) was regarded only as a "curiosity," the "discovery of a second case" (namely, that of Daniels and Manson) "opens up a new field for investigation and elucidation," and so on. This view of the relative importance of an original discovery and of a mere confirmation of that discovery is somewhat novel. But the case of Drs. Manson and Daniels is not the second case at all. The second case—also discovered by Dr. Dutton—was that of a child in British Gambia.

It is unnecessary, after what has been said, to deal with the statement made in *The Hospital*. It affords, however, an instance of the curiously rapid manner in which such errors are often propagated in the Press.

We should note that Barron and Nepveu have also claimed to have found flagellates in human blood; but, as will be seen from their writings, their descriptions are so inadequate as to fail to convince us of the accuracy or even the nature of their observations.

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The Secular Bending of a Marble Slab under its own Weight.

JUST east of the old brick church in the Rock Creek Cemetery near the Soldiers' Home in Washington is a phenomenon which, so far as I know, is unique. A marble slab, originally plane and resting on four posts at the corners, in the course of about half a century has gradually bent under its own weight and a section of it assumed the figure of a catenary. Careful measurement shows the slab to be 2 inches thick, 35 inches wide and 70 inches long; the posts supporting the slab are 7·5 by 6·75 inches in horizontal section, and so placed that the inner edges (which now furnish the support) are 52 inches apart. The stone has bent so much that the ends of the slab are tipped up one inch above the outer edges of the posts on which they formerly rested. At a distance of 12 inches from the ends, the bending is 1·25 inches; at a distance of 24 inches, the bending is 2·50 inches; and at the centre (distant 35 inches from either end), the bending is 3·05 inches. The stone is a little rough from the effects of atmospheric decomposition, and, of course, the hundredth of an inch is hardly to be depended upon in these measures.

Inquiry as to the epoch of erecting the stone did not lead to definite information, but the inscription gave a date of 1853, thus indicating that it has probably been in position approximately half a century. The superintendent of the grounds has been there some twenty years, and he assured us that the bending of the stone had become much more decided in recent years.

The slab is composed of white marble, of about the texture of the material used by sculptors, and appears sufficiently crystalline and homogeneous to take a polish. On the under surface, the stretching of the material has given rise to a number of small cracks, such as develop in plaster where it bends. The chief interest in the phenomenon arises from the evidence it furnishes that *marble is in reality a fluid of enormous viscosity*. This has, of course, some bearing on the question of the rigidity of the rocks composing the crust of the earth and the gradual adjustment of the earth's figure under gravity.

T. J. J. SEE.

Washington, D.C., November 3.

November Swallows.

SINCE the end of October I had not seen a single swallow. This afternoon, however, between four and five o'clock, I saw a party of six, or more, leisurely hawking over the trees and house-tops. It was occasional appearances such as this, after the general exodus, which led Gilbert White to believe that swallows did not all migrate. On seeing some on November 4, near Newhaven, he writes:—

"I am more and more induced to believe that many of the

¹ *Journal of Tropical Medicine*, September 1.

² "Thompson Yates Laboratory Reports," vol. iv. part ii., May; and *British Medical Journal*, September 20.

swallow kind do not depart from this island, but lay themselves up in holes and caverns; and do, insect-like and bat-like, come forth at mild times and then retire to their *latebrae*."

So far as I can make out, November 7 is the latest date on which White records having seen swallows. In 1900 I observed them here throughout the month of November—usually not more than from one to three at a time—up to November 30. In 1901 I never saw one after the end of October.

Recent study of migration seems to show that those individuals of a species which breed farthest north are the last to migrate south. But it is hard to believe that these November swallows are those which have bred in the most northern region visited by the species, say, Iceland and the Faroes. How could they have subsisted in those more boreal climes while ours, "foggy, raw and dull," forced them to flee across the seas? I venture to suggest that they are individuals which had already accomplished a part of their southward retreat. They had reached, perhaps, the south of France or Spain. It would be a small matter for such powerful fliers to pop back for a brief interval, tempted by a spell of mild weather. And there is reason to believe that in retiring to their winter quarters many species perform the journey in a much more leisurely fashion than when they make their great rush to their breeding grounds.

G. W. BULMAN.

13 Vicarage Drive, Eastbourne, November 12.

THE MYCENÆAN DISCOVERIES IN CRETE.

FOR several years past the attention of archæologists has been directed more and more to Crete. The reasons for this access of interest in the antiquities of the great Mediterranean island have already been explained in the two articles on the "Older Civilisation of Greece," which appeared in NATURE, vol. lxiv. p. II, and vol. lxvi. p. 390. In Crete, revelations of the older culture of the Greek lands are now being made at a very rapid rate, and it is to Mr. Arthur Evans that the palm for these revelations must be awarded. Through many years of greater or less success he has explored the byways of Crete, convinced that the great island would eventually yield results of the greatest importance for the elucidation of the early history of Mediterranean civilisation, and now he has had his reward in the remarkable discoveries which have attended the systematic excavations which he has at last been able to carry out on the site of the ancient Knossos, the city of Minos himself. It is the excavation of Knossos which has directed public attention to the possibilities of Cretan exploration, and there is no doubt that in importance this excavation ranks far higher than any other in Crete. This being so, it is with Knossos that we may fitly commence our survey of these Cretan explorations. Enough has been said in the two articles previously mentioned to give the reader a general idea of the discoveries at Knossos, and of the peculiar characteristics of the earlier Mycenæan age in Crete—which we ought, perhaps, rather to designate, with Mr. Evans, the "Minoan" age—which have been revealed by these discoveries.

Knossos lies about four miles south of the town of Cândia, or Hérâkleion, as the Greeks call it. The walk thither is pleasant; the road (a rarity in Crete) resembles any English country lane. In front rises the curious isolated cone of Iuktas, the fabled burial-place of Zeus, which seems steadily to increase in size as we proceed southwards, and at Knossos dominates the surrounding country. Breasting a hill, Iuktas comes into fuller view; on either hand are rolling downs, backed by mountains; further on, a couple of roadside wine-shops, a house, and a path off to the left across the fields to a white patch with a wooden summer-house in the middle of it, from the top of which floats the Union Jack; this is Knossos, where Minos judged, where Theseus slew the Minotaur.

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Coming from the west, one enters first the great western court, which, if one is not a timid Dryasdust, but an archæologist who takes pleasure in repeopling the ground on which he stands with those heroic figures which are associated with it in legend, one may call the Dancing-floor of Ariadne if one will. Crossing to the south-west corner, one reaches the remains of a great gate at this end of the beautiful wall of polished gypsum blocks which separates the court from the rest of the palace, and so round through the corridors which once were adorned with frescoes of tribute-bearers coming in procession, into the long north-and-south gallery out of which open to the left the curious long cupboard-rooms or "magazines" in which were stored the great earthenware *pithoi*, with ornament in relief, containing tablets or other objects of value, which are so characteristic of Minoan palaces. Most of these remain *in situ*, some broken or overturned by falls of masonry, many roughly restored with plaster to keep them together. In the floors open the curious lead-lined safes or receptacles for valuables, called "Kasellais" by the diggers, made with the greatest care in double tiers, and still almost excavator proof. Unluckily, most of the golden treasures which they once contained seem to have been removed before the final catastrophe which overwhelmed the palace of Minos. Over one of these magazines stands the "summer-house" already mentioned, which is really a kind of gazebo, built by Mr. Evans for the purpose of obtaining a panoramic view of the excavations. Hence we pass round to the right, to the throne-room, which opens on to the central court. This is now roofed over, in order to protect its contents from the weather, and the curious brightly-coloured modern Mycenaean pillars, tapering from capital to base, which occupy the site of the ancient columns, with the red-painted walls, give us an interesting idea of what the place once looked like. It should be remembered that there is no "restoration" here; it is purely a work of conservation; the form and colour of the modern pillars are supplied from a Knossian fresco, the colour of the modern walls is but a continuation of the colouring of the ancient. The effect is good. Leaving the throne-room of Minos, with its curious throne with back in the form of an oak-leaf and legs carved with Gothic crockets, its stone seats for the councillors, its bath and its great stone bowl, we cross the central court eastwards to the edge of the hill, and then descend part of the wonderful quadruple staircase, which was excavated by Mr. Evans with so much difficulty and is now held in place by wooden arches, to the "Hall of the Colonnades," in which one might fancy oneself in the court of an Italian palace. Above us is an open loggia, which can be attained from half-way up the stairs. The existing palace is just here nearly three stories high, and was originally four or more! As Mr. Evans points out (*Journal of Hellenic Studies*, xxi. p. 335), "even at Pompeii staircases one over the other have not been brought to light." Passing out, we reach the "Hall of the Double-Axes," so called from its pillars and wall-blocks, which are engraved with the mystic sign of the god of Knossos and of Dikté, who was afterwards (?) identified with the Aryan Zeus. Everybody knows the brilliant philological explanation by Mayer and Kretschmer which has made clear the meaning of *Λαβύρινθος* as "Place of the Double-Axe," and so has converted the guess that the Knossian palace is the Labyrinth itself into a practical certainty.¹ One

¹ In the *Journal of Hellenic Studies*, xxi. part ii. p. 268, Mr. W. H. D. Rouse complains of my having followed Mr. Evans in accepting this explanation of the word "*Λαβύρινθος*" and having adopted his identification of the Knossian palace with the Labyrinth, in my book "The Oldest Civilization of Greece." Mr. Rouse does not accept the explanation, and so will not adopt the identification. I apprehend, however, that his refusal to accept the explanation of the name is due to the fact that he is hardly cognisant of all the arguments for it. For instance, he says that the termination *-vros* is not explained! (*loc. cit.* p. 274). He will find it fully explained in